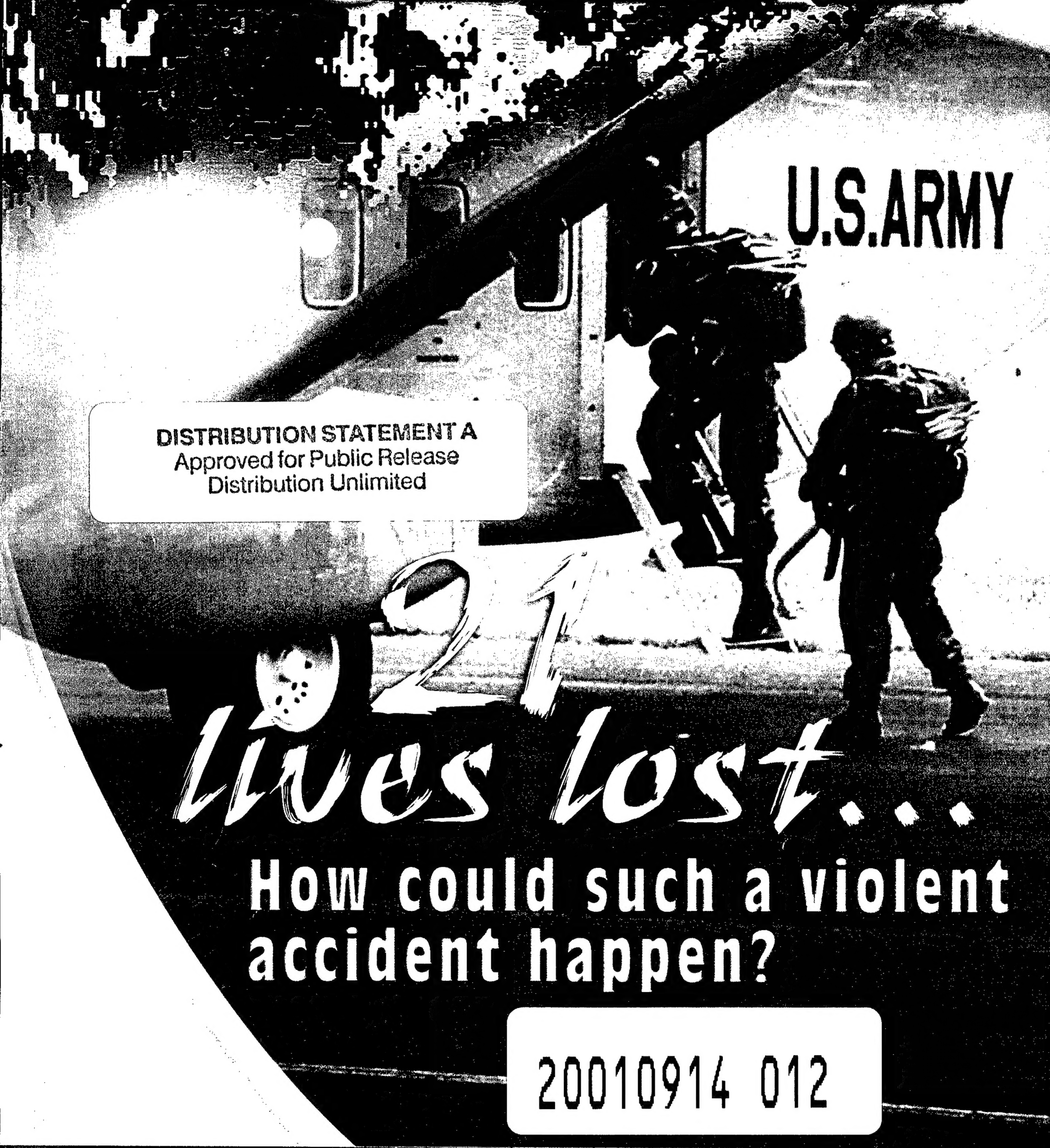
Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

SEPTEMBER 2001 VOL 29 NO 9



21 lives lost...

How could such a violent accident happen?

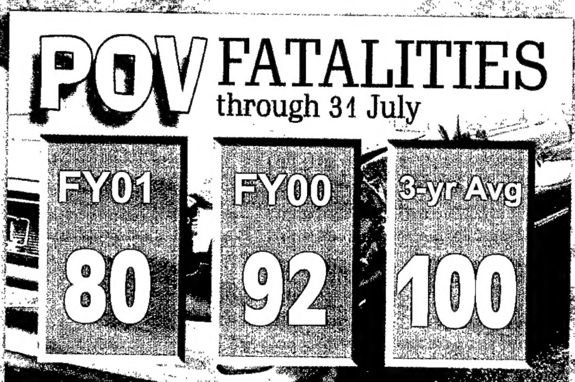
Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

BG James E. Simmons – Commander and Director of Army Safety
COL John Warren – Deputy Commander
John Hooks – Chief of Media and Marketing
LTC Scott G. Ciluffo – Editorial Supervisor
Editor – Judy Wilson
Graphics – Danny Clemmons
Distribution – Sharrel Forehand
e-mail - flightfax@safetycenter.army.mil
http://safety.army.mil

U.S. ARMY SAFETY CENTER

CONTENTS



Flightfax is published by the US Army Safety Center, Building 4905, Fifth Avenue, Fort Rucker, Alabama 36362-5363. Questions about the editorial issues addressed in *Flightfax* should be directed to the editor at DSN 558-9855, commercial telephone (334) 255-9855. Distribution questions should be directed to Media and marketing at DSN 558-2062, commercial telephone (334) 255-2062.

James E. Simmons
Brigadier General, US Army
Commanding

DASAF's CORNER

from the Director of Army Safety

Leaders out front save lives

I'm Jim Simmons. For the past 27 years, I have sat where you are—in the field executing tough missions. Now I'm the new Director of Army Safety.

I can sum up my safety philosophy fairly simply. **Units that participate in tough, well-disciplined training with technically and tactically competent leaders present have significantly fewer accidents.**

Safety is discipline. It is doing things right—every time! It's competent leaders being at the right place, at the right time, to make sound decisions. And it's leaders who enforce discipline and standards. Flapping canvas, not wearing Kevlars and chin straps, inattention to uniforms—these are small items that clearly indicate indiscipline in the unit. Fail to do these right, and pre-combat checks, pre-combat inspections, preflights, and checklists are next.

Leaders must be technically qualified to lead their unit. Pilot-in-command status is one measure of your technical qualifications. One method of demonstrating your technical proficiency is to put your checkride score up for others to emulate. The first guy going up for the DES evaluation should be the commander. It isn't enough to be technically proficient; you must also be tactically proficient. Your tactical competence must be reflected in two areas: your complete understanding of the unit's mission essential tasks list (METL) and how to do each of them correctly and proficiently; and of the battle space in which you will operate. Understand whom you are working with and how your support affects them. Dropping infantry soldiers 1500 meters from the landing zone and having them close the distance is unacceptable.

Commanders and leaders must be on the front lines in the aircraft accident prevention battle. We have to be actively involved before the aircraft breaks friction with the ground, and our most state-of-the-art safety weapon is risk management. It's up to each of us to set the standard in our units. I will tell you that normally, generally, almost always, no one accomplishes the risk management standard (that is, an informed decision at the appropriate level) while sitting behind a desk doing e-mail. As leaders, our presence must be on the front lines. While there are lots of folks to help us in integrating safety and risk management into our operations, leaders guide the boat. At the same time, we must also be skilled in using the talents and assets in our organizations. If you cannot physically be present, make sure the Command Sergeant Major, S3, XO, or another principal staff member is out there to observe the training.

My message to you is, don't stop training. Tough, realistic, disciplined training lessens casualties in combat. Effectively applying the 5-step risk management process, and ensuring risk decisions are being made by leaders at the appropriate level, will help us do the right training and do it safely. ★

Flying in Bad Weather is High Risk

Early one Saturday morning, I sat on my front porch having coffee as a large storm system approached from the west. It stretched from the Gulf of Mexico northeast in a line across the southeastern states, almost to the east coast. It had been three days in coming, but now it looked as though it would finally get here bringing needed rain. The winds began picking up—an indication that the storm would be here soon. As I watched it approach I wondered if anyone would dare to fly that day. A couple of hours later, my wife called for me to watch a news clip on CNN: an Army airplane had crashed, killing all on board.

Not long afterward, the Army Safety Center notified me that I would be deploying with an accident investigation team. I readied my deployment kit and was picked up by the board president. We arrived at the Safety Center where we were briefed on the latest details of the accident. Quickly completing last minute logistics coordination, we departed for the accident site.

Looking for answers

We arrived on scene after dark but walked the crash site, looking at the devastation and wondering how such a violent accident could happen. An aircraft was destroyed and burned; 21 fellow servicemen were dead. Needless to say, it was a sobering experience standing there viewing the wreckage, and feeling the weight of the responsibility for finding the answers to everybody's questions: What happened and why?

For the next two weeks, the board sifted through wreckage; took pictures and measurements to document the site; reviewed numerous documents; interviewed anyone and everyone who heard, saw, or knew anything about this accident; and ensured we had accounted for all aircraft pieces and parts. This required an air search for major components of the aircraft. The left wing (outboard of the engine), both rudders, a wing strut, and several smaller pieces were found in a line downwind of the wreckage and as far away as two and quarter miles. As the investigation proceeded,

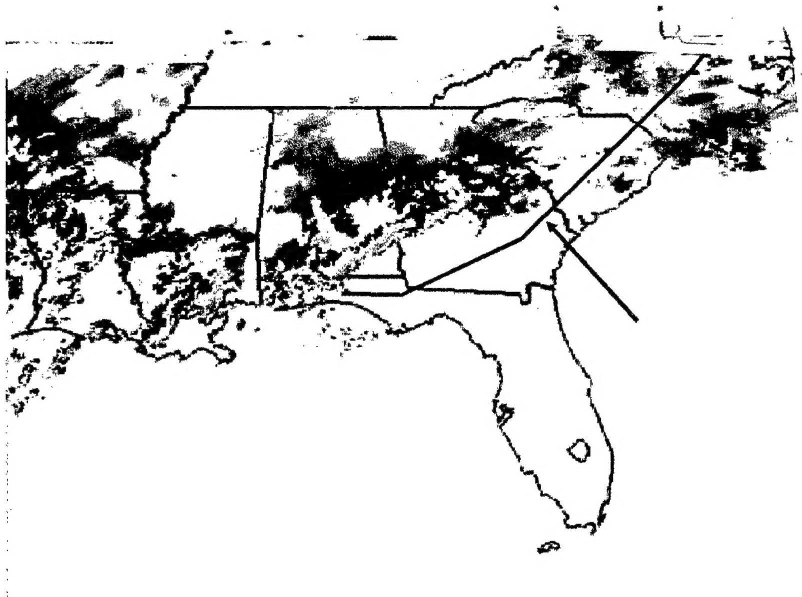


Figure 1. Fly as far east as possible

the picture of what happened became clearer.

The flight

The mission was to transport 18 Air Force National Guardsmen (AFNG) from their training site to their home station. A C-23B+ Sherpa from the Army National Guard was to fly the mission. The commander briefed the mission and rated it as low risk. The crew departed home station and flew to the Air National Guardsmen's training site to remain overnight prior to the mission.

The flight crew arrived at base operations approximately 1 hour before the scheduled takeoff time on the day of the mission. About 40 minutes before takeoff, the crew received a weather briefing. The forecaster identified an area of thunderstorms along the crew's filed route of flight, with 16 to 45 percent coverage, and maximum tops at 50,000 feet. He told the crew to fly as far east as possible before turning north to avoid the weather (See Figure 1). There were no questions of the forecaster by the crew.

The flight crew filed an instrument flight rules (IFR) flight plan (which was printed at their home unit). The crew was to take off and fly a northeasterly route along a series of VOR airways to their destination. They requested a cruising altitude of 9,000 feet MSL and estimated their time en route as 3+00 hours, with 5+00 hours of fuel onboard. A passenger manifest listing 18 AFNG passengers to the flight plan was attached. The flight engineer loaded the aircraft with passengers and baggage as the flight crew readied the aircraft. He had computed the weight and balance for the flight prior to departing home station.

The crew departed the training site, and a few minutes later, air traffic control (ATC) had the aircraft under positive radar control at 9,000 feet. ATC then advised their traffic of Convective SIGMET 11E (See Figure 2). The advisory stated that there was a line of severe thunderstorms moving from 280 degrees at 30 knots with tops at 40,000 feet. Hail to 1 inch and wind gusts

Figure 2. Severe thunderstorm advisory

Figure 3. Aircraft broke apart before impact

to 60 knots were also possible. A convective SIGMET implies severe to extreme turbulence, severe icing, and the potential for microbursts and windshear. Traffic was further instructed by ATC to contact flight service or monitor HIWAS (Hazardous Weather In-flight Advisory Service) for the details of the advisory. The C-23 crew did not contact any flight service station for more information on Convective SIGMET 11E. (It is not known if the crew monitored HIWAS on any VOR in their vicinity.)

The crew continued to stay on their filed route of flight, avoiding buildups with small flight deviations. One approach control assisted them in avoiding some heavy thunderstorms (level 3 and 4 and some level 5s). Additionally, there was another aircraft approximately 15 minutes behind them that was receiving vectors of 090, 100, and 110 degrees to avoid buildups from ATC. The other aircraft was only equipped with a Stormscope, but the C-23 was equipped with a weather radar and a Stormscope and informed ATC of this fact (See figure 3).

The crew of the Sherpa never deviated to the east farther than a heading of 063 degrees. They maintained their northeasterly heading throughout the entire flight, with only short deviations for weather as each air traffic facility advised them of the line of severe weather. Approximately 45 minutes after takeoff, the crew checked in with their last ATC facility. The crew was given the current altimeter setting, which they read back. ATC received a good transponder code from the aircraft showing them at their assigned altitude. Soon thereafter, their altitude began to drop for no apparent reason. Ten minutes after checking in with this controller, the C-23 disappeared from the radar screen. The air traffic controller heard no Mayday call, nor did he receive a 7700 emergency transponder code. The controller made numerous attempts to contact the crew, but received no replies.

Lessons re-learned

The crew had encountered extreme turbulence and upper level wind shear in the vicinity of a severe and violently developing level 4 to 5 thunderstorm. The crew lost control of the aircraft, the aircraft experienced loads beyond its design limits, and it broke apart in-flight before impacting the ground.

It's easy to learn from mistakes, but tragically that usually means somebody had to pay the price for our re-education. I hope as you read the account of this flight that you were able to see what can happen when you don't stay on the ground, land early and take cover, or stay well clear of severe weather.

For more than 3 months, the accident investigation board—which included expert meteorologists, structural and stress engineers, and members from other accident investigating agencies within DOD—toiled over every minute piece of information available. We didn't find any new accident causation factors; we simply re-learned what every aviator already knows. Thunderstorms can be deadly, and flying into them or near them is simply tempting fate. When the weather is bad, the safest place for an aircraft is on the ground.

—Gary D. Braman, Fixed-Wing Aircraft System Safety Manager, U.S. Army Safety Center, bramang@safetycenter.army.mil, DSN 558-2676,CML 334-255-2676

Computer-assisted disasters

Computers, digital instruments, glass cockpits, and mission planning stations are tools that have taken Army aviation from the analog to the digital age. Each can assist aviators to plan and execute missions more efficiently and effectively. While many of us older guys were hesitant about them at first, we all have come to rely heavily on these systems.

They have a down side—what I call "computer-assisted disaster". I know of three accidents investigated by the Safety Center in which the flight crew either relied too heavily on digital aids or improperly entered data into the machine. In short, "Garbage in, Garbage Out." Unfortunately, in these cases, the garbage out was critical information that contributed to damaged and destroyed aircraft and lost lives.

The accidents

A fixed-wing aircrew was flying in rugged terrain, at night, on what had become a routine mission. The crew was navigating using waypoints put into the computer by a mission specialist. Approximately one hour into the flight, the aircraft flew directly into the side of a mountain, killing all on board. Documents found in the wreckage indicate that the mission specialist apparently entered the grid coordinates incorrectly, and the flight crew failed to recognize the error prior to the flight. The aircraft was several miles off the planned course but directly between the improperly entered waypoints at the time of the accident.

Weight was off

A rotary-wing flight crew was conducting gunnery when they experienced a bleed off of main rotor RPM and crashed into trees. The investigation revealed that the computer-assisted weight and balance form used by the crew did not list all the equipment installed on the aircraft. This led them to believe that the aircraft was lighter than it was. The root cause of the accident was insufficient power available for the maneuver. The flight crew did not realize they would have insufficient power because they did not know the actual weight of the aircraft. Fortunately, both crewmembers walked away from the accident.

Another rotary-wing aircrew suffered an extremely hard landing because they put their faith in a computer that told them they had sufficient power to conduct an OGE hover. Unfortunately, the takeoff weight put into the computer was off by over 1000 pounds.

G.I.G.O.

Each of these accidents was in some way affected by the "Garbage In, Garbage Out" phenomenon; the "Fat Finger" exercise of putting flight data into a computer. However, the critical mistake was made when the pilot-in-command (PC) did not confirm all the numbers, after they were transformed from pencil and paper to the 1s and 0s of the digital world.

How do we avoid these "computer-assisted disasters"? The most obvious way is to ensure the numbers are right when they go in the first time. Take your time. More importantly, PCs have to ensure that the numbers are correct by checking them, either by comparing them to other logbook entries or to the good old hand held map. If the PC inputs the data, the copilot needs to check them. Let's not let labor-saving devices become aircraft destroying ones.

—LTC W.R. McInnis, Aviation Systems and Accident Investigation Division, DSN 558-2450, CML 334-255-2450, mcinnisw@safetycenter.army.mil

BROKEN WING AWARD

The Army Aviation Broken Wing Award recognizes aircrewmembers who demonstrate a high degree of professional skill while recovering an aircraft from an inflight failure or malfunction requiring an emergency landing. Requirements for the award are in AR 672-74, Army Accident Prevention Awards.

CW2 Aaron L. Fisher, Pilot in Command (PC)
CW3 Roy A Hollins co-pilot (PI)

While ferrying a flight of three OH-58D (I) aircraft over water to a carrier, the crew, CW3 Hollins (PI) and CW2 Fisher (PC) in chock three heard a mild report from the rear of the aircraft. This noise was followed by a very noticeable vibration and a 10-15 degree right and left yaw on either side of the course line.

CW3 Hollins, a maintenance officer and maintenance examiner, got on the controls and began assessing the aircraft's controllability as well as its airworthiness. CW2 Fisher confirmed the transfer of controls and immediately declared an emergency to the tower. CW3 Hollins immediately assessed the vibration he felt in the airframe and pedals as a high frequency vibration. While adjusting the airspeed, he applied pressure to the anti-torque pedals to see if they would respond to his inputs. The pedals would not move and appeared to be stuck.

Immediately after the emergency was declared, a very loud report was heard by the crew. This was followed by a 90-120 degree yaw, a nose pitch down, and a right roll. The aircraft was now in an out-of-control situation.

CW2 Fisher made a mayday call to the tower. CW3 Hollins determined that his only course of action was to place the aircraft in an autorotational profile by reducing the collective and adjusting the throttle to try to regain control of the aircraft.

After the collective was reduced, the aircraft stopped its right yaw. CW3 Hollins applied the cyclic in the direction of the turn and was able to regain control of the aircraft, which was 180 degrees from the original heading. CW3 Hollins entered a deceleration at about 100 feet and allowed the tail of the aircraft to make contact with the water.

As the aircraft's tail contacted the water, CW3 Hollins pulled the remaining collective and reduced the throttle to the idle position. The aircraft settled into the water without any forward momentum and settled upright without any collateral damage. CW2 Fisher jettisoned the right crew door. As the aircraft settled, the crew exited through the right pilot's door. The crew suffered minor bruises and mild hypothermia.

The entire crew

demonstrated outstanding airmanship throughout the emergency, executing the prescribed emergency procedure to standard. CW3 Hollins and CW2 Fisher communicated effectively and utilized effective cockpit resource management, which played an important role in the successful outcome of this potentially disastrous situation. The decision of the PC to relinquish the controls to the more experienced aviator allowed CW3 Hollins to continue the procedure. The crew's technical knowledge, situational awareness, and outstanding airmanship prevented the possibility of this becoming a fatal accident. (Editor's note: This over water incident was featured in the June 2001 issue of *Flightfax*.)

CW2 Christopher T. Rowley

During a zero illumination night flight using Night Vision Goggles (NVG), CW2 Rowley was in the left seat of the OH-58D (I), operating the mast mounted sight. The pilot was flying from the right seat maneuvering into the observation point, which was located behind a ridge line with an extremely steep, tree-covered slope. The aircraft was loaded with approximately 315 pounds of fuel, 168 rounds of .50 caliber ammunition, and three multipurpose submunition (MPSM) 2.75" rockets.

As the aircraft decelerated, the LOW HYD PRESS and SCAS DISENG caution messages illuminated on the multi-function display, and associated audio alarms sounded. CW2 Rowley, sitting in the left seat, took the controls and immediately attempted to regain forward airspeed and altitude. He felt pronounced control feedback, but regained aircraft control in time to clear the ridgeline that was in the front of the aircraft. Realizing that the aircraft had suffered a complete hydraulics failure, CW2 Rowley declared an emergency to the tower, and directed the pilot to safe the weapons system and assist him with the appropriate emergency procedure. When hydraulic power was not restored by pulling the HYD SYS circuit breaker, CW2 Rowley realized that it was necessary to fly to an area that would permit a run-on landing. CW2 Rowley opted for an airfield because it afforded crash rescue facilities, but decided on an alternate facility which precluded flying through more mountainous terrain. The crew contacted a sister aircraft for flight following, and advised them of their emergency and intentions.

CW2 Rowley approached the airfield at approximately 400 feet above ground level (AGL) and 60 KIAs. The crew completed a high reconnaissance of the area to ensure there were no obstacles on the runway. CW2 Rowley then opted to attempt the run-on landing to avoid the most extreme terrain conditions and the highly lit areas that would interfere with the NVGs. As the aircraft cleared a set of trees and crossed the runway threshold, CW2 Rowley executed a smooth touchdown with airspeed slightly above ETL. Once the aircraft came to a complete stop, he notified his sister ship and the tower that the aircraft was down and safe, and he performed normal shutdown procedures.

CW2 Rowley's actions were extraordinary. A complete hydraulics failure at low airspeed in the OH-58D is difficult, if not nearly impossible, to control. The situation on this night was greatly exacerbated by the fact that the crew was flying NVGs on a zero illumination night; this was the first time either crew member had flown a gunnery at this range; the co-pilot was at readiness level 2; the terrain was extremely mountainous and full of wire obstacles, and the aircraft was fully armed. CW2 Rowley displayed incredible flying skill, executing exacting crew coordination with his co-pilot, and flawlessly executed the emergency procedure from the onset of the emergency, to the touchdown and shutdown of the aircraft. CW2 Rowley's competency, good judgement, and skill saved the lives of two crewmembers and a multi-million dollar aircraft.

Laser FAQs: The second of a three-part series

Part II – Laser Protection

Last time, in Part I of our laser series, we answered questions concerning the nature of lasers on the modern battlefield. This month, in Part II, we address questions about laser protection. The challenge of providing protection against an ever-changing laser threat, while not compromising performance, is a difficult one.

Q: What is my greatest concern from exposure to lasers?

A: For the aviator, the greatest concern is potential injury to the eye. While the skin does absorb laser energy, much more energy is required for skin damage than for eye damage.

Q: Why is the eye at such great risk?

A: The eye is designed specifically to focus light onto the retina of the eye. For continuous wave lasers, the eye will focus a higher concentration of energy on a very small area. In addition, laser energy can be absorbed by the various parts of the eye, causing thermal damage. Pulsed lasers can cause damage by a shock-wave effect, similar to that caused by a bullet.

Q: What parts of the eye can be affected?

A: Ultraviolet and far-infrared laser energy can damage the cornea. Visible and near-infrared lasers will be focused on and damage the retina.

Q: What are my chances of being seriously injured by lasers?

A: To date, only a handful of laser injuries have been documented, and most of these have been self-inflicted. Whether damage will occur, and to what extent, depends on many factors. These include the laser's wavelength and power, exposure duration, distance from laser source, pulse repetition frequency (for pulsed lasers), and the nature of the exposure (direct beam or reflection).

Q: Do my sunglasses or standard flight visors provide any protection against lasers?

A: Your sunglasses and standard clear/tinted visors provide virtually no "real" protection against military lasers, no more than a sheet of paper would provide protection from bullets. However, they will afford you some protection against dazzle and flash blindness.

Q: What form of laser protection is available to the aviator?

A: Both 2-notch (NSN 8415-01-394-8026) and 3-notch (NSN 8415-01-394-8024) laser visors have been fielded for the HGU-56P flight helmet. The 2-notch is "light green" in color; the 3-notch is "bronze or brownish." The notches cover the military laser wavelengths considered to present the greatest threat. The 2-notch protection can be worn either day or night, but the 3-notch protection is too dark to be worn safely at night. For the Apache aviator, a 2-notch visor (NSN 1270-01-327-3107) is available. Spectacles (made with pale green KG-3 or KG-5 glass) protecting against the AH-64's own laser are available.

Q: What is meant by a "2-notch or 3-notch" laser visor?

A: A "notch" refers to a section of the spectrum for which your visor offers protection. Therefore, a "2-notch" visor provides protection against two different lasers, a "3-notch" against three different lasers. However, you need to know *which* laser wavelengths your visor protects against. The 2-notch visor protects against Ruby (visible red) and Neodymium YAG (infrared) lasers. The 3- notch protects against these two and one additional wavelength that has a military application.

Q: How is the protection level of a visor rated?

A: Any laser protective device is rated by: a) the wavelengths it protects against and b) the amount of protection for each of those wavelengths. The amount of protection is called the "optical density" or "OD." An OD value of 1 means 1/10th of the incoming laser energy gets through; OD=2 means 1/100th gets through; OD=3 means 1/1000th, etc. OD values of greater than 3 are usually required to provide adequate protection.

Q: How does laser protection work?

A: Current laser protection methods are generally of two types: absorption and reflection. Absorption is achieved by mixing a dye with the standard visor during molding. The dye absorbs the laser energy that strikes the visor. Reflective coatings are typically "sandwiched" between two layers of polycarbonate and reflect the laser energy.

Q: Does the protection level of my laser visor hold up over time?

A: No, most dyes used in absorption visors are affected by sunlight exposure. Current guidance is that absorptive visors should be replaced after 600 hours of sun exposure. To maximize the life of laser visors, wear them only when a laser hazard/threat is anticipated. Reflective coatings are not known to degrade over time or with exposure to sunlight.

Q: Is there a performance price for wearing laser protection?

A: Yes, any time you have to look through one more layer between you and the outside world, your visual performance will be degraded, even if ever so slightly. In addition, since the protective device may be designed to block certain visible wavelengths, it may affect your ability to view cockpit displays and warning lights.

Q: Do scratches on my laser visors affect my laser protection?

A: Minor scratches will diffract and defocus the intensity of the laser, which actually increases the laser protection. Large scratches which might allow a laser to penetrate, will be objectionable from a pilot's visual perspective and are easily identified.

Q: Can my mechanic/technician use my laser visor for protection while he is performing maintenance on the rangefinder/designator?

A: No. Your visor was designed to provide you adequate protection at operational combat ranges. A technician working on the system is working at point blank range. His OD requirements are much greater than yours.

Q: Does looking through optics give me protection against lasers?

A: No, direct-view optical systems do not provide protection...unless they specifically have a laser filter installed, and, even then, they protect only against those laser wavelengths for which the filter was designed.

Q: Do my NVGs offer laser protection?

A: Yes. When you are looking in the direction of the laser, the energy *does not* pass through the goggles. But, the goggles will bloom. And, of course, if you are looking under or around the goggles, you are at risk.

Q: What can and should I do if I am exposed to a laser?

A: Next month, in the third and final part of this laser series, questions regarding laser injuries will be answered.

Q: Who can I contact for more information on laser visors?

A: HGU-56/P wearers can contact PM-AES (see below). Apache aviators can contact Mr. Larry Best, Aircraft Armament Group Leader, DSN 793-2329.

—Jim Hauser, product engineer, PM-AES, DSN 897-4267, (256) 313-4267, jim.hauser@peoavn.redstone.army.mil; Clarence E. Rash, physicist, USAARL, DSN 558-6814, (334) 255-6814, Clarence.rash@se.amedd.army.mil

NCO CORNER

Aviation life support message RECAP

AIS 01-01 rescinds AIS 99-01 summary of ACIS messages about ALSE. This is a list of messages transmitted by PM-ACIS (SFAE-AV-LSE) from 1 February 1996 through 31 December 2000. This annual update of messages assists units in checking to see if they have received all ALSE Messages. The 2000 PM-ACIS recap:

✔ AIS 96-01 dtg 080026z Feb 96 (superseded): by AIS 96-12: Summary of AIS 1995 messages

✔ AIS 96-02 dtg 041636z Mar 96 (superseded): by AIS 96-12: Summary of all messages published by the product manager

✔ AIS 96-03 dtg 072220z Mar 96 (current): Overview of the SPH-4/SPH-4B Flyer's helmet

✔ AIS 96-04 dtg 041641z Mar 96 (expired) by AIS 97-02: Repeat of HQDA-AV message dtg 081254z Aug 95

✔ AIS 96-05 dtg 041647z Mar 96 (superseded): by **www.http://134.78.40.107** : Questions about the AN/PRC 90, AN/PRC90-2

✔ AIS 96-06 dtg 041659z Mar 96 (expired) by the Army FEDLOG: Medical components used in the SRU-21/P vest

✔ AIS 96-07 dtg 041711z Mar 96 (superseded): by AIS 97-03: CO_2 cartridge

✔ AIS 96-08 dtg 041239z Apr 96 (current): Aviator and aircrew laser eye Protection

✔ AIS-96-09 dtg 041715z Apr 96 (current): info on the SRU-21/P component list

✔ AIS 96-10 dtg 051938z Mar 96 (current): survival rations NSN 8970-00-082-5665

✔ AIS 96-11 dtg 041244z Apr 96 (superseded): by AIS 96-15: signal kit foliage penetrant

✔ AIS 96-12 dtg 062313z Apr 96 (superseded): by AIS 98-01: summary of messages published

✔ AIS 96-13 dtg 291849z Jul 96 (superseded) by AIS 97-08: Manual Reverse Osmosis demineralizer (MROD-06)

✔ AIS 96-14 dtg 591855z Jul 96 (superseded) by AIS 97-03: helicopter oxygen system

✔ AIS 96-15 dtg 301900z Jul 96 (current): signal kit, personnel distress

✔ AIS 96-16 dtg 301906z Jul 96 (superseded) by AIS 97-07: aviation life support school

✔ AIS 96-17 dtg 011656z Aug 96 (current): repeat of Joint Services Sere Agency (JSSA)

✔ AIS 96-18 dtg 051531z Aug 96 (current): mustang survival, mac 10 anti-exposure suit

✔ AIS 96-19 dtg 142203z Aug 96 (current): disassembly/ reconfiguration authorization

✔ AIS 96-20 dtg 232000z Sep 96 (current): life raft and container assembly

✔ AIS 96-21 dtg 232215z Sep 96 (superseded) by AIS 97-08: manual Reverse osmosis (water purifier MROD-06)

✔ AIS 96-22 dtg 262032z Sep 96 (superseded) by AIS 97-02: delay of this HQDA message

✔ AIS 97-01 dtg 051858z Feb 97 (superseded) by AIS 98-01: summary of 1996 AIS messages

✔ AIS 97-02 dtg 052025z Feb 97 (current): repeat of avn wpn sys,DALO-SMV message ensure that there is one fully operational survival radio is on board the aircraft

✔ AIS 97-03 dtg 052029z Feb 97 (current): Compressed gas cylinder overhaul/inspection

✔ AIS 97-04 dtg 052031z Feb 97 (superseded) by AIS 01-02: use and inspection of harness, safety restraint

✔ AIS 97-05 dtg 052034z Feb 97 (current): BA-1574/u battery used in the SDU-5/E light

✔ AIS 97-06 dtg 052054z Feb 97 (current): survival kit multi-climate for OH-58D aircraft

✔ AIS 97-07 dtg 052103z Feb 97 (superseded): by www.http://134.78.40.107 Aviation life support equipment course

✔ AIS 97-08 dtg 052104z Feb 97 (current): manual reverse osmosis

✔ AIS 97-09 dtg 031939z Jun 97 (current): leg straps on restraint harness

✔ AIS 97-10 dtg 032017z Jun 97 (current): HGU-56/P ear cup assembly

✔ AIS 97-11 dtg 221812z Sep 97 (superseded): by AIS 99-06 SARVIP modification strap kit and instruction

✔ AIS 98-01 dtg 102011z Mar 98 (superseded): by AIS 99-01 summary of 1997 ACIS messages

✔ AIS 98-02 dtg 151356z May 98 (superseded): by AIS 98-05 turn in of SPH-4/4B helmets

✔ AIS 98-03 dtg 151531z May 98 (current): optional removal of HGU-56/P nape strap pad foam insert

✔ AIS 98-04 dtg 111621z Aug 98 (current): matches, non safety, wood (NSN 9920-01-154-7199)

✔ AIS 98-05 dtg 111632z Aug 98 (current): revision of turn in of SPH-4/4B helmets

✔ AIS 99-01 dtg 201938z Apr 99 (superseded): by AIS 01-01 summary of 1999 ACIS messages

✔ AIS 99-02 dtg 281951z Apr 99 (current): revision of compressed gas cylinder overhaul/inspection

✔ AIS 99-03 dtg "not issued" see AIS 00-02

✔ AIS 99-04 dtg 161635z Jun 99 (current): authorized alternate paint for spot painting of the HGU-56/P helmet

✔ AIS 99-05 dtg 011932z Jul 99 (current): aviation life support equipment course

✔ AIS 99-06 dtg 152138z Sep 99 (current): rescind AIS 97-11 modification strap kit and instructions

✔ AIS 99-07 dtg 131635z Dec 99 (current): announcement of the M-45 mask fielding

✔ AIS 00-01 dtg 132205z Mar 00 (current): aviator and aircrew member laser eye protection

✔ AIS 00-02 dtg 011732z May 00 (current): aircrew survival vest components

✔ AIS 00-03 dtg 312126z Aug 00 (current): clarification of shelf/service life of lensatic compass NSN 6605-01-196-6971

If you have not received, or need copies of a PM-ACIS message(s) after the initial release of the message, you can obtain copies using www.peo aviation web site for additional news, system updates and for copies of the ALSE messages. The web site address is "**www.peoavn.redtone.army.mil/aes/_private/post_req/messages _req.html**"

Aircrew integrated systems point of contact for this message is Mr. John Jolly, SFAE-AV-LSE, DSN 897-4262 or (256) 313-4262. FAX is DSN 897-4346 or (256) 313-4346. Email **john.jolly@peoavn.redstone.army.mil** or SSG Adam Byington, SFAE-AV-AES, DSN 897-4655 or (256) 313-4655, FAX DSN 897-4346 or (256) 313-4346, **adam.byington@peoavn.redstone.army.mil**

ACCIDENT BRIEFS

Information based on preliminary reports of aircraft accidents

AH-64

Class E

A series

■ Aircraft's shaft-driven compressor light illuminated in flight with loss of pressurized air system. Aircrew executed emergency procedure and landed to the nearest open field. Normal shutdown. Maintenance replaced shaft driven compressor. Aircraft released for flight.

C-12

Class C

■ Over temp indicated during flight. Maintenance performed post flight inspection. Engine replaced.

CH-47

Class E

D series

During cruise flight the No.2 engine chip detector light illuminated. The crew completed the emergency procedure and terminated the flight at the airfield. The engine was replaced due to excessive metal in oil.

■ During four wheel taxiing, hydraulic fluid began leaking within the flight control closet. Aircraft was immediately shut down. Maintenance found that No.1 flight hydraulic system pitch transfer tube O-ring failed. O-ring was replaced and aircraft was returned to service.

OH-58

Class A

D-I series

■ During a NVG terrain flight reconnaissance at approximately 130 feet AGL and approximately 3 knots indicated airspeed, the rotor speed drooped from 100% NR to 86%. The rotor drooped to the point that the crew was unable to sustain controlled flight. As a result, the crew lost tail rotor authority and directional control of the aircraft. The droop was unrecoverable based on the low altitude and low airspeed at the time of the droop and the rapid onset of the initial descent. The aircraft impacted into the trees and came to rest on the left side, nose down on a 30° slope resulting in major aircraft damage.

Class B

D-I series

■ While cruising at 1,300 feet MSL, aircraft engine experienced a compressor stall, followed by engine failure. Autorotation was initiated, and aircraft landed hard. Four main rotor blades were destroyed, right skid and aft saddle mount were broken with some underfuselage wrinkling. Tailboom with tail rotor was broken off, both chin bubbles were broken, left side windscreen was cracked, and AN/ALQ144 destroyed.

Class E

A series

■ During hover, aircraft's right rear door came open. Crew closed door, but door would not stay secured. Aircraft landed without further incident. Door was replaced.

C series

■ During low level flying, binding of aircraft's cyclic occurred. Aircraft was landed without further incident. Cyclic stick boot was replaced.

D(I) series

■ While on climbout during a mixed aircraft formation takeoff, chalk four of the flight encountered the lead aircraft's rotor wash. The aircraft began to settle to the ground. The pilot on the controls applied collective to stop the descent. The mast torque indicated 117% for one second. The pilot immediately broke formation, declared a precautionary landing, and returned to base. The aircraft was inspected. No damage found, and the aircraft was released for flight.

RC-12

Class B

D series

■ While being vectored by ATC for storm activity, aircraft was struck by lightning while descending from assigned cruise altitude. Post flight inspection revealed damage to the right prop, right inboard and outboard flaps, and trailing edge of right elevator.

UC-35

Class C

A series

■ While in flight performing an avionics test, aircraft was struck by lightning and hail. Aircraft was landed without further incident. Inspection revealed damage to nose cone and several small holes in de-ice boots.

TH-67

Class E

A series

■ During cruise, tail rotor chip illuminated. Aircraft landed without further incident. Replaced tail rotor gearbox.

UH-60

Class A

K series

■ Aircraft landed hard in brown-out conditions. Damage to landing gear, undercarriage and FLIR. One crewmember sustained minor injuries.

Class B

A series

■ During a simulated engine failure at a hover in dusty conditions, aircraft landed hard. Damage to right landing gear strut. Aircraft came to rest upright. Crew exited without assistance. One crewmember injured.

Class C

A series

■ Following roll-on landing, post flight inspection of aircraft revealed one main rotor blade had made contact with the AN/ALQ-144. Damage to rotor hub and droop stops.

L series

■ Aircraft's stabilator made contact with the ground during landing into open field.

Class E

A series

■ While in level flight at 400 feet AGL, 120 knots, the No.2 Engine Fire light illuminated. Prior to illumination of the fire light, the aircraft had been flown through moderate to heavy rain. The aircraft was landed and shutdown without further incident. Maintenance replaced both No.2 Engine Fire Detection Sensors and the aircraft was released for flight.

NEWS & notes

Accident classification change

Effective 1 Oct 01, Army accident classifications as defined in paragraph 2-2, AR 385-40 (Dec 94), will be changed as follows:

1. Class A: No change.

2. Class B: Minor change. The Class B threshold for the number of persons hospitalized in the same accident is reduced from five to three or more persons.

3. Class C: No change to personal injury. Property damage changed from $20k to less than $200k. (This increases the lower threshold from $10k to $20k.)

4. Class D: No change to personal injury. Property damage changed to $2k to less than $20k. (This increases the upper threshold from $10k to $20k.)

The classifications are not effective until 1 Oct 01. All other requirements of AR 385-40 (Dec 94) remain in effect until publication of a revised document expected in late FY02. Contact your local Safety Office or your Major Army Command (MACOM) Safety Office for supplementary requirements in your organization.

—Msg DTG 081810Z Jun 01 subject: Clarification of Army Accident Classes

AN/PRC-104B radio card

Need the operator instruction card for the AN/PRCB radio? CECOM has a limited supply and will send you one as long as their supply holds out. Send an e-mail to **Gloria.Richardson@mail1.monmouth.army.mil**

—PS Magazine

Flight data recorders – Not just for accident investigation

When we think about flight data recorders, we usually imagine the "black box", that first thing that investigators look for after a major aviation accident.

Officials at the U.S. Army Safety Center, however, have discovered that cost savings can be a part of the package of current applications of flight data recorders, or FDRs.

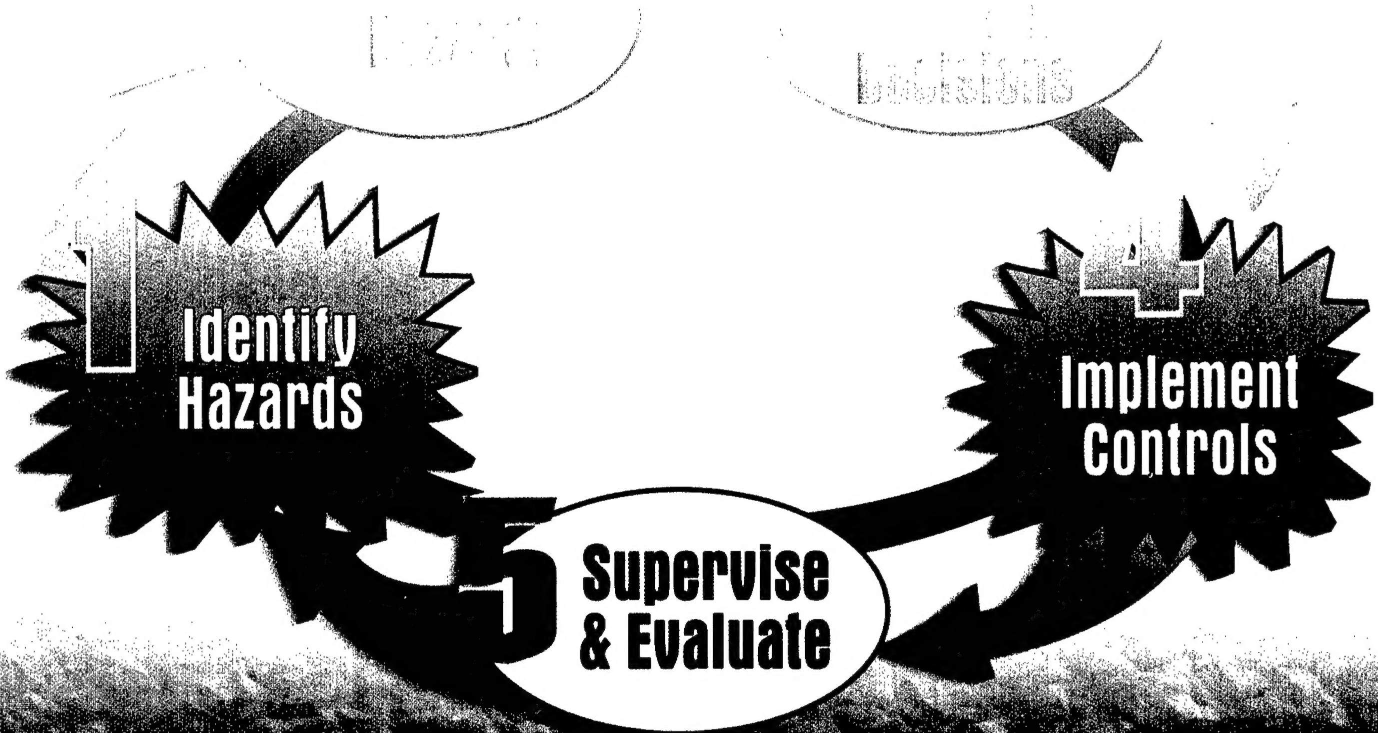
Recently, the Safety Center's FDR Analysis section saved the Army over $350,000 through the use of flight data recorders. When a flight crew reported an engine over-torque on an OH-58D Kiowa Warrior aircraft, the fleet maintenance officer thought he would have to replace the aircraft's engine. The aircraft's engine history page on the Multi-function Display showed an over-torque of 122% for no time. Replacing the engine would have cost the Army over $350,000. However, downloading the aircraft's data transfer cartridge (DTC), in order to analyze the engine data, showed that the engine achieved a maximum torque that was less than the first reported 122% (119.925% for 0.8 seconds). Based on that information, the fleet maintenance officer determined that the aircraft's engine does not have to be replaced - saving the Army over $350,000.

—Joseph P. Creekmore, Jr, Chief, Flight Data Recorder Analysis Section, USASC, DSN 558-2259 (334) 255-2259, creekmoj@safetycenter.army.mil

Tailplane icing video

Unit instructor pilots should provide in-depth classes on aircraft icing, tailplane icing and the different recovery actions between wing stalls and tailplane stalls. Until the Army can determine exact tailplane stall recovery procedures, fixed wing aviators can view a 23-minute video entitled 'Tailplane Icing' produced by the NASA Glenn Research Center Icing Branch (Website: http://icebox.grc.nasa. gov). This video tells what tailplane icing is, how you get into it, and corrective actions to get you out.

RISK MANAGEMENT



Supervision and evaluation: ensuring effectiveness

The previous article in this series discussed the fourth step of risk management, i.e., how hazard controls can be implemented by various means of communications and rehearsal. The current article will discuss the fifth step of risk management, which involves the supervision and evaluation of controls.

Supervision is nothing more than monitoring and enforcing the execution of control actions. There are a number of monitoring methods including commander and leader presence, pre-combat inspections and checks, situation reports, spot checks, and back briefs. Effective monitoring should answer the following questions:

- Are the right people/units performing the actions?
- Are they doing these actions at the right time and place?
- Are they using the right procedures/ equipment?
- Are their actions properly coordinated with the people and or /units providing support and/or being supported?

If at any time the answer to any of the above questions is "no", enforce the control by taking action that will get things back on track.

—Captain Wayne Gilstrap, USASC, DSN 558-3819 (334) 255-3819, gilstraw@safetycenter.army.mil